

covered with short reeds. Here and there a small hole had been excavated and the black saline earth thrown up round the edge. It was from one of these waterholes close in front of me that two green pigeons rose and flew back over the line, to perch on a cocoanut palm some 200 yards away. I could not be sure of the species but think they were Grey-fronted (*O. pomapadora*) and not the Southern Green (*C. phoenicopterus*).

Green pigeons so seldom visit the ground that this fact alone seems worth recording, but the incident raises another point of speculative interest. In 'Birds of Southern India' Col. Baker quotes Jerdon's remark that large numbers of Imperial Pigeons annually visit a salt swamp in the neighbourhood of Cannanore in the hot weather, and adds that though he lived some years at various times at Cannanore he had never seen or heard of this swamp nor could he get any information about it. I also have tried without success for many years to locate it. May it not be that the place where I found these green pigeons is the swamp to which Jerdon refers and that they visited it for the salt earth on the analogy of deer visiting salt licks? True they were green pigeons and not imperials, but if the latter have acquired this habit there seems no reason why the former also should not have it. That imperial pigeons eat earth at salt licks is mentioned on page 359 of Smythie's 'Birds of Burma'. I would add that in 25 years' experience of the country round Cannanore I have never seen a green pigeon before in the coastal area; but then I have never visited the swamps so late as mid-March.

BANGALORE,

E. G. PHYTHIAN-ADAMS,

April 10, 1943.

Major, I. A.

X.—SOME NOTES ON THE COMMON SANDGROUSE (*PTEROCLES EXUSTUS* TEMMINCK) IN KAIRA DISTRICT.

(With a plate)

I have kept notes on matters of shikar and natural history interest in Kaira District since 1930, and the following observations are based on these.

Pterocles exustus is the only sandgrouse found in Kaira District.

Distribution.—Found ordinarily only in small numbers along a relatively narrow belt bordering the western limits of the district. This belt widens both in its northern and southern extent; especially in the south adjoining Cambay State where the character of the country is more suitable; that is drier and barer sandy patches of land with scattered areas of cultivation near large barren plains. The common sandgrouse is a resident of the district, but the numbers to be found in any given year depend largely on the rainfall of the previous season. There seems to be a certain amount of local migration into and from the drier portions of Kathiawar, and the number breeding in the district varies considerably with the season. Ordinarily there must not be very many that nest in the district.

During the period under observation the rainfall was average or above average from 1930 to 1934, and during these years sandgrouse were seen only occasionally. From 1935 to July 1941, each succeeding year the rainfall was increasingly below average; 1939, 1940 and 1941 being extremely dry. In April 1940 the Vatrak river, just above its point of junction with the Sabarmati, was completely dry; the first time, according to the local villagers, that it had been so, since the famine year of 1900. At the same time many deep wells that had never been dry, went dry. It was during 1939, 1940 and up till the rains in 1941 that a marked increase in the numbers of sandgrouse in the district was noticed. During this period they were plentiful and some nests were found. In the following two years, 1941 and 1942 the rains were exceptionally heavy, above average for the district, and sandgrouse again scarce; and they are still so at the present (April 1943).

Nesting.—In the months of December, January and up till the end of February in 1940 and 1941 grouse were found in enormous flocks of several hundreds. Sometime during the last week of February these large flocks could no longer be found. Those then seen would be in scattered pairs or small flocks of six or eight here and there. The question arises whether this increase in the size of the flocks during December, January and February, is connected with pairing and breeding or whether it represents a preparation for a local migration of a certain number over into Kathiawar and the northern drier sections of the country.

The following are some extracts from my notes on nests and young:—

March 20, 1940. Saw, while riding in our car, about noon, a pair of common sandgrouse out in an open plain near Radhu. The hen was sitting on a newly scrapped out shallow depression, with the cock standing nearby. We drove up cautiously until we were within about eight feet of the pair without disturbing them. Watched them for some time from our seat in the car. (Unfortunately did not have the camera with us). It was only after my wife stepped out of the car that the pair flew off. The nest consisted of a simple depression in the ground, unlined, placed next to a lump of dried cowdung. There were no eggs.

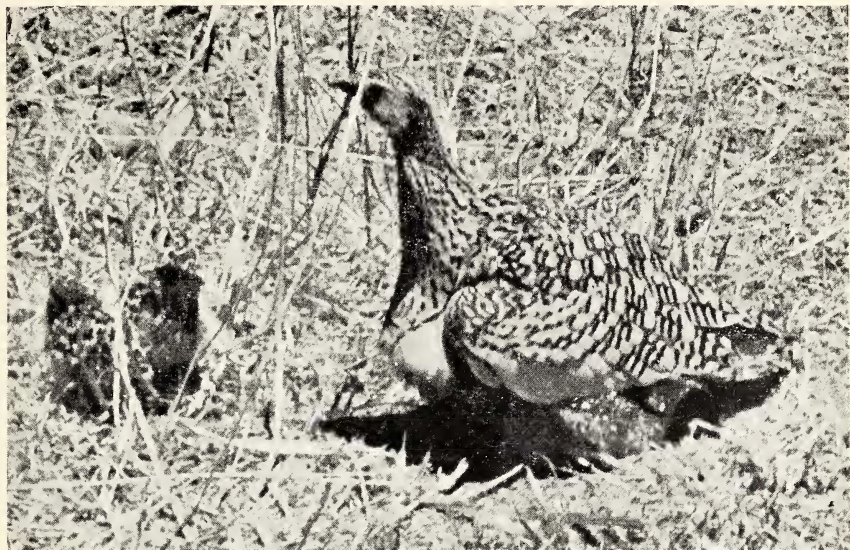
March 27, 1940. Went back to photograph the sandgrouse and nest seen on March 20th near Radhu. Found the nest deserted. There were a few pieces of egg shell lying in and around the nest. Robbed?

May 22, 1940. West of Traj; saw a pair of grouse with two recently fledged young dusting themselves in an ox cart road. The wings of the young were fully feathered and they could fly.

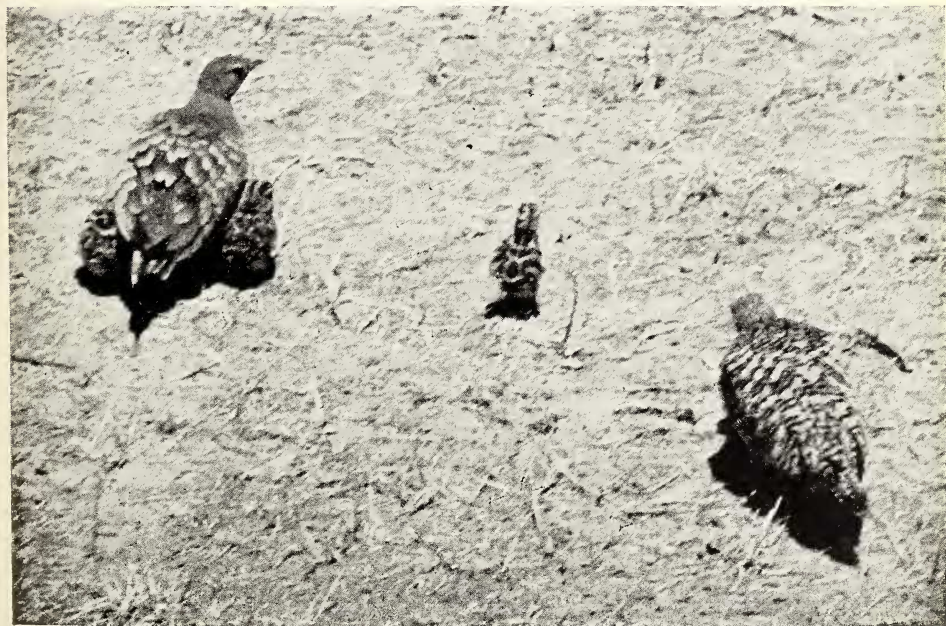
Feb. 12, 1941. West of Traj near the Vatrak river, saw several good-sized flocks of sandgrouse. Shot ten; of these, two of the hens were found to be with fully matured, and hard shelled oviduct eggs. The testes and ovaries of most of the others were enlarged.

Feb. 19, 1941. Wank. Saw several very large flocks of grouse coming to water between 10 o'clock and 11-30 in the morning. Shot 19 birds. All of the testes and ovaries of these were in an

COMMON SANDGROUSE (*Pterocles exustus* Temm.)



1. Female with one chick under her wing and two standing in front of her.



2. Male, female and three chicks attempting to escape by slowly creeping away.

[Photos by Author.]